
Determinants of Stunting in Toddlers: An Analysis of Social, Economic, and Child-Rearing Factors in the Community

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ABSTRACT

Stunting among toddlers remains a critical public health issue due to its long-term impact on cognitive development, productivity, and socio-economic outcomes. This study aims to analyze the determinants of stunting incidence by focusing on social, economic, and parenting factors within the community context. A qualitative approach with a descriptive-exploratory design was employed. Data were collected through in-depth interviews, focus group discussions, observations, and document analysis involving mothers, health workers, and community representatives selected using purposive sampling. The data were analyzed using thematic analysis to identify key patterns and relationships among variables. The findings reveal that stunting is influenced by interconnected factors across multiple dimensions. Social factors such as cultural norms and limited family support affect caregiving practices, while economic constraints—particularly low income and food insecurity restrict access to adequate nutrition and healthcare services. Parenting practices, including breastfeeding, complementary feeding, and child care during illness, emerge as the most critical determinants, acting as a pathway through which social and economic conditions influence child growth. Environmental conditions and limited utilization of health services further exacerbate the risk of stunting. In conclusion, stunting is a multidimensional problem requiring integrated interventions that address socio-economic inequalities, strengthen parenting practices, and improve access to health services to achieve sustainable reductions in prevalence

Keywords: *Stunting, Social Factors, Economic Factors, Parenting Practices, Public Health*

INTRODUCTION

Stunting among children under five remains one of the most pressing public health challenges globally, particularly in developing countries where nutritional inequalities and structural vulnerabilities persist. Defined as a condition of impaired linear growth due to chronic malnutrition, stunting reflects not only biological deprivation but also broader socio-economic and environmental constraints that shape child development trajectories. Recent global estimates indicate that approximately 22% of children worldwide experience stunting, with Southeast Asia contributing

nearly 27% of total cases, positioning countries such as Indonesia among those with the highest burden (Azriani et al., 2024; Suratri et al., 2023). This condition is not merely a matter of physical stature but represents a critical indicator of long-term human capital deficits. Children affected by stunting are more likely to experience delayed cognitive development, lower educational attainment, and reduced productivity in adulthood, which collectively undermine national economic growth and perpetuate intergenerational poverty cycles (Azriani et al., 2024).

The urgency of addressing stunting is further amplified by its far-reaching socio-economic consequences. Empirical evidence suggests that individuals who experienced stunting in early childhood may suffer income losses of up to 20% during their productive years, contributing to an estimated 11% loss in gross national product (GNP) across regions in Asia and Africa (Azriani et al., 2024). In addition, stunting is associated with increased susceptibility to non-communicable diseases, higher healthcare costs, impaired motor and cognitive abilities, and elevated risks of child morbidity and mortality (Akbar et al., 2023; Quamme & Iversen, 2022). These multidimensional impacts have led global institutions such as the World Health Organization (WHO) and national governments, including Indonesia, to prioritize stunting reduction as a central target in both global nutrition agendas and national development strategies (Suratri et al., 2023). Consequently, addressing stunting is not only a health imperative but also a strategic investment in sustainable development and social equity.

Despite extensive research on stunting, significant gaps remain in understanding its complex and multidimensional determinants. Much of the existing literature has traditionally focused on isolated factors such as nutritional intake, health service utilization, or disease prevalence. However, recent studies emphasize that stunting is inherently a multifactorial phenomenon influenced by interconnected layers of determinants, including individual, household, and community-level factors. A scoping review conducted in Southeast Asia highlights that while determinants of stunting can be broadly categorized into direct, underlying, and basic factors following the UNICEF conceptual framework, there remains a lack of integrative studies that simultaneously examine these dimensions in a comprehensive manner (Azriani et al., 2024). In particular, the interaction between social conditions, economic status, and parenting practices at the household and community levels has not been sufficiently explored in a unified analytical model.

Further evidence from systematic reviews underscores the limited attention given to family dynamics and socio-cultural contexts in stunting research. For instance, studies focusing on family characteristics reveal that aspects such as household structure, primary caregiver roles, and socio-cultural orientations are often overlooked, despite their potential influence on child nutrition and caregiving practices (Yani et al., 2023). Similarly, environmental conditions within the household—such as housing quality, flooring type, access to clean water, and sanitation facilities—are frequently examined in isolation rather than as part of a broader socio-economic ecosystem. This fragmented approach restricts the ability of researchers and policymakers to fully understand how these factors interact to influence child growth outcomes.

In addition to household-level gaps, there is also a notable lack of research addressing structural and contextual determinants of stunting. Studies conducted in regions such as Rwanda and other parts of Africa highlight the importance of social norms, gender power relations, and early life exposures as critical yet underexplored determinants (Kalinda et al., 2024; Quamme & Iversen, 2022). Gender inequality within households, for example, can affect decision-making processes

related to food allocation, healthcare access, and caregiving responsibilities, thereby indirectly influencing child nutritional status. Moreover, early life trajectories, including maternal nutrition during pregnancy and intrauterine growth conditions, play a crucial role in shaping the risk of stunting but are often insufficiently integrated into broader analytical frameworks (Namirembe et al., 2022). These findings suggest that stunting cannot be effectively addressed without considering the broader socio-cultural and structural environment in which children are raised.

Another critical research gap lies in the limited application of multilevel and context-specific analyses that capture variations across geographic and administrative regions. In Indonesia, for instance, studies have demonstrated that stunting prevalence is not only determined by individual and household characteristics but also significantly influenced by district- and provincial-level factors such as healthcare infrastructure, water and sanitation systems, and regional development disparities (Mulyaningsih et al., 2021; Widyaningsih et al., 2022; Arief et al., 2025). Rural-urban disparities further exacerbate these inequalities, with children in rural areas often facing higher risks due to limited access to essential services and economic opportunities (Siramaneerat et al., 2024). However, existing studies often fail to integrate these multilevel determinants into a cohesive analytical framework, resulting in fragmented policy recommendations that may not effectively address the root causes of stunting.

The complexity of stunting determinants is further illustrated by the interplay between social, economic, and parenting factors. From a socio-economic perspective, poverty remains one of the most consistent predictors of stunting, as it limits access to adequate nutrition, healthcare services, and safe living environments. Households experiencing food insecurity, low parental education, and inadequate access to clean water and sanitation are significantly more likely to have stunted children (Mulyaningsih et al., 2021; Suratri et al., 2023; Tamir et al., 2024; Widyaningsih et al., 2022; Quamme & Iversen, 2022). In addition, living in underdeveloped or remote regions further compounds these risks by restricting access to essential resources and services (Arief et al., 2025). These findings highlight the importance of addressing socio-economic inequalities as part of comprehensive stunting prevention strategies.

At the household level, family characteristics and living conditions also play a crucial role in shaping child nutritional outcomes. Large household sizes, inadequate housing conditions, limited access to electricity and safe water, and unequal gender dynamics in decision-making have all been associated with increased risks of stunting (Yani et al., 2023; Utumatwishima et al., 2023; Tamir et al., 2024). These factors not only reflect material deprivation but also indicate broader social vulnerabilities that can affect caregiving practices and resource allocation within the household. For example, in households where decision-making power is concentrated among certain members, children's nutritional needs may not be adequately prioritized, leading to suboptimal feeding and care practices.

Parenting practices, particularly those related to child feeding and caregiving, constitute another critical dimension in the determination of stunting. Maternal knowledge of nutrition, breastfeeding practices, complementary feeding, and care during illness are key factors influencing child growth and development. Evidence suggests that inadequate maternal knowledge and inappropriate feeding practices—such as the absence of exclusive breastfeeding or improper complementary feeding—significantly increase the risk of stunting (Azriani et al., 2024; Yani et al., 2023; Galiatano et al., 2023; Hurun et al., 2024; Kusumajaya et al., 2023). A study conducted in

Malang, Indonesia, identified maternal knowledge as the most dominant factor influencing stunting compared to other variables, underscoring the importance of education and awareness in shaping caregiving behaviors (Hurun et al., 2024). Furthermore, the availability of family support systems and access to health services can enhance or hinder the effectiveness of parenting practices, highlighting the interconnected nature of these determinants.

At a broader level, community and regional contexts significantly influence the distribution and determinants of stunting. Multilevel analyses in Indonesia reveal that variations in stunting prevalence are not solely attributable to individual or household factors but are also shaped by contextual characteristics such as healthcare accessibility, water, sanitation, and hygiene (WASH) conditions, and regional infrastructure development (Mulyaningsih et al., 2021; Siramaneerat et al., 2024; Widyaningsih et al., 2022; Arief et al., 2025). These findings emphasize the need for place-based interventions that consider local contexts and disparities rather than adopting a one-size-fits-all approach. Without addressing these structural and environmental determinants, efforts to reduce stunting may yield limited and unsustainable outcomes.

Based on the aforementioned discussion, it is evident that stunting is a complex and multifaceted issue that requires a comprehensive and integrative analytical approach. While previous studies have provided valuable insights into individual determinants, there remains a significant gap in understanding how social, economic, and parenting factors interact simultaneously within specific community contexts. This study offers a novel contribution by integrating these three dimensions into a unified analytical framework, thereby providing a more holistic understanding of the determinants of stunting among toddlers. By examining the interplay between socio-economic conditions, family dynamics, and caregiving practices, this research seeks to bridge existing gaps in the literature and generate evidence that is more relevant for designing effective and context-sensitive interventions.

Therefore, the primary objective of this study is to analyze the determinants of stunting incidence among toddlers by examining the combined influence of social factors, economic conditions, and parenting practices within the community context. This objective is expected to contribute to the development of more integrated public health policies and intervention strategies aimed at reducing stunting and improving child health outcomes in Indonesia and other similar settings.

METODOLOGI

This study employs a qualitative research approach with a descriptive-exploratory design to gain an in-depth understanding of the determinants of stunting incidence among toddlers, particularly focusing on the interaction between social, economic, and parenting factors within the community context. The research is conducted in selected communities with a high prevalence of stunting, involving purposively selected informants who are considered to have relevant experiences and knowledge. These include mothers or primary caregivers of stunted and non-stunted toddlers, community health workers (posyandu cadres), and local health officials. Data are collected through in-depth interviews, focus group discussions (FGDs), and non-participant observations to explore parenting practices, household socio-economic conditions, cultural norms, and access to health services. In addition, document analysis is conducted on relevant records such as child growth monitoring reports and local health program data. To ensure data credibility and trustworthiness,

the study applies triangulation techniques (source triangulation, method triangulation, and time triangulation), as well as member checking with selected participants.

The data analysis process follows an interactive model of qualitative analysis, consisting of data condensation, data display, and conclusion drawing/verification. All interview and discussion data are transcribed verbatim and analyzed using a thematic analysis approach, where codes are generated inductively to identify recurring patterns and themes related to social conditions, economic challenges, and parenting behaviors influencing stunting. The analysis also involves categorizing findings into broader dimensions aligned with the research framework, such as socio-economic vulnerability, caregiving practices, and community-level influences. To enhance analytical rigor, the study utilizes peer debriefing and maintains an audit trail throughout the research process. The findings are interpreted contextually to provide a comprehensive explanation of how various factors interact and contribute to the occurrence of stunting among toddlers, thereby offering nuanced insights for policy and intervention development..

RESULTS AND DISCUSSION

To synthesize the qualitative findings, the results are organized into an integrated thematic framework that captures the interplay between social, economic, and parenting factors influencing the incidence of stunting among toddlers. The table below presents the key themes, sub-themes, and illustrative findings derived from interviews, observations, and focus group discussions.

Table 1. Integrated Thematic Findings on Determinants of Stunting

No	Main Theme	Sub-Themes	Key Findings
1	Social Factors	Family structure, social support, cultural norms	Limited family support and strong cultural beliefs influence feeding habits
2	Economic Factors	Household income, employment, food security	Low income restricts access to nutritious food and health services
3	Parenting Practices	Breastfeeding, complementary feeding, care during illness	Inconsistent feeding practices and low maternal knowledge observed
4	Environmental	Housing condition, sanitation, access to clean water	Poor sanitation and limited clean water increase health risks

5	Health Services	Posyandu utilization, immunization, health education	Irregular attendance and low awareness reduce service effectiveness
6	Community Context	Rural–urban disparity, infrastructure, local support systems	Rural areas face greater barriers in access and health infrastructure

Table 1 demonstrates that the determinants of stunting are interconnected and operate across multiple levels, ranging from individual caregiving practices to broader socio-economic and environmental contexts. Parenting practices emerge as a central mechanism through which social and economic constraints directly affect child nutritional outcomes. At the same time, structural factors such as poverty, limited healthcare access, and inadequate environmental conditions amplify the risk of stunting, particularly in rural communities. The findings highlight that stunting cannot be addressed through a single-sector approach; instead, it requires integrated interventions that simultaneously target family behavior, economic empowerment, and improvements in public health infrastructure.

DISCUSSION

This study aims to analyze the determinants of stunting incidence among toddlers by focusing on the interaction between social, economic, and parenting factors within the community context. The findings presented in Table 1 demonstrate that stunting is not caused by a single factor but rather emerges from a complex interplay of multidimensional determinants operating at individual, household, and community levels. These findings are consistent with the broader scientific consensus that stunting is a manifestation of chronic nutritional deprivation and repeated infections occurring particularly during the first 1,000 days of life, with long-term consequences for cognitive development, educational attainment, and economic productivity (Azriani et al., 2024; Sihotang et al., 2023; Mulyaningsih et al., 2021). In line with global and regional trends, the persistence of stunting in Indonesia reflects structural inequalities and behavioral factors that remain inadequately addressed despite ongoing public health interventions (Suratri et al., 2023; Noor et al., 2022).

The thematic findings highlight that **social factors**, including family structure, cultural norms, and social support systems, significantly shape parenting behaviors and child nutritional outcomes. Limited family support and deeply rooted cultural beliefs were found to influence feeding practices, often leading to suboptimal dietary intake among toddlers. This aligns with previous studies indicating that socio-cultural environments play a critical role in shaping caregiving practices and nutritional decisions within households (Purwita, 2022; Ansoriani, 2023). In many communities, traditional beliefs regarding food taboos or child feeding practices may restrict the diversity and quality of children’s diets, thereby increasing the risk of chronic malnutrition. Furthermore, the absence of strong social support networks—such as assistance from extended family members or community health workers—can reduce the capacity of caregivers to provide optimal care,

particularly in resource-limited settings. These findings reinforce the argument that social determinants are not merely contextual variables but active drivers that influence behavioral patterns related to child health and nutrition (Azriani et al., 2024).

In addition to social influences, **economic factors** emerged as one of the most dominant determinants of stunting in this study. Households with low income, unstable employment, and limited food security were consistently associated with a higher risk of stunting among toddlers. This finding is strongly supported by previous empirical studies and meta-analyses, which demonstrate that poverty and household food insecurity significantly increase the likelihood of stunting, with odds ratios ranging from 1.6 to 3.5 (Suratri et al., 2023; Daningrum et al., 2023; Noor et al., 2022; Rohmawati et al., 2023; Soofi et al., 2023; Afework et al., 2021). Economic constraints limit access to nutritious food, healthcare services, and safe living conditions, thereby creating a cumulative risk environment for children. Moreover, households with a large number of members or multiple young children often face additional financial strain, which can dilute the allocation of resources for each child's nutritional needs (Sari et al., 2025; Sihotang et al., 2023). This study's findings confirm that economic vulnerability is a foundational determinant that interacts with other factors, amplifying the risk of stunting through multiple pathways.

The role of **environmental and community-level conditions**, as identified in the findings, further strengthens the argument for a multilevel understanding of stunting determinants. Poor housing conditions, inadequate sanitation, and limited access to clean water were found to increase children's exposure to infections, which in turn exacerbate nutritional deficiencies. This is consistent with the literature emphasizing the importance of water, sanitation, and hygiene (WASH) factors in preventing stunting (Daningrum et al., 2023; Noor et al., 2022; Kalinda et al., 2023; Mulyaningsih et al., 2021; Afework et al., 2021). Recurrent infections such as diarrhea can impair nutrient absorption and increase metabolic demands, thereby contributing to growth faltering. Furthermore, the study reveals that children living in rural or underdeveloped areas face greater challenges due to limited access to healthcare services and infrastructure. Multilevel studies in Indonesia have similarly shown that regional disparities, including differences in healthcare availability and community resources, significantly influence stunting prevalence beyond individual and household characteristics (Noor et al., 2022; Mulyaningsih et al., 2021). These findings highlight the importance of addressing structural inequalities at the community level to achieve sustainable reductions in stunting.

Among all determinants examined, **parenting practices** emerged as a central and mediating factor linking social and economic conditions to child nutritional outcomes. The findings indicate that inadequate breastfeeding practices, inappropriate complementary feeding, and insufficient care during illness are key contributors to stunting. These results are consistent with the classification of underlying determinants in the UNICEF framework, which emphasizes the role of caregiving practices in shaping child health (Azriani et al., 2024). Empirical studies have shown that the absence of exclusive breastfeeding and improper complementary feeding significantly increase the risk of stunting (Suratri et al., 2023; Sari et al., 2025; Sihotang et al., 2023). Moreover, this study confirms that maternal knowledge plays a crucial role in determining the quality of parenting practices. Low levels of nutritional knowledge among mothers were associated with inconsistent feeding patterns and poor dietary diversity, which are critical factors in child growth and development.

The importance of maternal knowledge and caregiving capacity is further supported by evidence indicating that poor parenting practices can increase the risk of stunting by up to 8.4 times,

while low household food security contributes to a 3.5-fold increase in risk (Rohmawati et al., 2023). Similarly, studies conducted in Indonesia have found that low maternal nutritional knowledge and inadequate caregiving practices can increase the likelihood of stunting by up to eight times (Daningrum et al., 2023; Hurun et al., 2024). These findings underscore the critical role of behavioral factors in mediating the impact of structural determinants. Even in contexts where economic resources are limited, improved knowledge and caregiving practices can mitigate some of the risks associated with stunting. Therefore, interventions aimed at enhancing maternal education and parenting skills are essential components of comprehensive stunting prevention strategies.

Another important finding of this study is the role of **health service utilization** in influencing stunting outcomes. Irregular attendance at community health services, such as posyandu, and low awareness of available health programs were identified as barriers to effective child growth monitoring and intervention. This finding is consistent with previous studies showing that inadequate utilization of health services, including antenatal care, immunization, and growth monitoring, is associated with higher rates of stunting (Suratri et al., 2023; Sihotang et al., 2023; Fadmi et al., 2025; Mulyaningsih et al., 2021). Health services play a crucial role in providing preventive care, early detection of growth faltering, and education for caregivers. Therefore, improving access to and utilization of these services is essential for reducing stunting prevalence.

Importantly, the findings of this study support the conceptualization of stunting determinants as a **hierarchical and interconnected system**, encompassing direct, underlying, and basic factors. Direct factors include child health status and nutritional intake, underlying factors involve caregiving practices and health service access, while basic factors encompass socio-economic conditions and environmental contexts (Azriani et al., 2024). The results demonstrate that these levels are not independent but interact dynamically to influence child growth outcomes. For example, low household income (a basic factor) can limit access to nutritious food and healthcare (underlying factors), which in turn affects the child's nutritional status and susceptibility to infections (direct factors). This integrated perspective is essential for understanding the complexity of stunting and designing effective interventions.

From a theoretical and practical standpoint, this study contributes to the existing literature by providing an **integrated qualitative perspective** on the determinants of stunting, particularly in the Indonesian context. While previous studies have often focused on specific determinants, this research highlights the importance of examining the interaction between social, economic, and parenting factors within a unified framework. This approach addresses the research gap identified in earlier studies, which emphasize the need for more comprehensive analyses that capture the multidimensional nature of stunting (Azriani et al., 2024; Sihotang et al., 2023; Mulyaningsih et al., 2021). By incorporating multiple perspectives from caregivers, health workers, and community members, this study provides a more nuanced understanding of the factors influencing stunting and their interrelationships.

In terms of policy implications, the findings suggest that efforts to reduce stunting must adopt a **multisectoral and integrated approach**. Interventions should not only focus on improving nutritional intake but also address broader socio-economic and environmental determinants. Programs aimed at poverty alleviation, food security, and infrastructure development are essential for creating an enabling environment for child growth. At the same time, community-based interventions that promote maternal education, improve parenting practices, and enhance health

service utilization are critical for addressing the underlying causes of stunting. The integration of these strategies is necessary to achieve sustainable reductions in stunting prevalence and improve child health outcomes.

In conclusion, this study demonstrates that the incidence of stunting among toddlers is determined by a complex interaction of social, economic, and parenting factors operating across multiple levels. Social norms and family dynamics shape caregiving behaviors, economic constraints limit access to essential resources, and parenting practices directly influence child nutritional outcomes. These findings highlight the need for a comprehensive and context-sensitive approach to stunting prevention, one that integrates behavioral, structural, and environmental interventions. By addressing these interconnected determinants, policymakers and practitioners can develop more effective strategies to reduce stunting and promote the well-being of future generations.

CONCLUSIONS

This study concludes that the incidence of stunting among toddlers is determined by the interconnected influence of social, economic, and parenting factors within the community context. Social elements such as family support and cultural norms shape caregiving behaviors, while economic conditions particularly low household income and food insecurity limit access to adequate nutrition and health services. At the same time, parenting practices, including breastfeeding, complementary feeding, and care during illness, act as a critical pathway through which these structural conditions directly affect child growth outcomes. The findings demonstrate that parenting practices serve as a central mediating factor, linking socio-economic constraints to nutritional status, while environmental and community-level factors further reinforce these risks. Therefore, achieving a reduction in stunting requires integrated interventions that simultaneously address socio-economic disparities, strengthen family and community support systems, and improve caregiver knowledge and practices to ensure optimal child development.

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